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NOTE

Tapinoma sessile (Say) (Hymenoptera: Formicidae) Nest in Association with the Northern Pitcher Plant, *Sarracenia purpurea* L. (Sarraceniaceae)

Tapinoma sessile (Say), the odorous house ant, is a native species found throughout the United Sates and Canada and is considered a house pest (Wang and Brook 1970). This species is extremely flexible in selecting nesting sites. Nests are excavated in the soil, with or without a covering object such as stones. Nests are also constructed under bark and have been reported in a variety of preformed cavities (Creighton 1950). When colonies nest in the soil, the nests are shallow and temporary. In studying nest relocation in four species of ants, Smallwood reported that *T. sessile* moved its nest approximately every twenty-six days (Smallwood 1982). Nests of *T. sessile* have been reported in boggy areas as well as swamps (Smith 1928).

While *T. sessile* is a diminutive species, its colonies can consist of several thousand workers and are reported to be polygynous. New colonies can be formed by a queen and a group of workers leaving the parent colony (budding) or by a single founding queen.

Workers of *T. sessile* visit plants to collect honeydew from plant-feeding insects including mealybugs, aphids and plant hoppers, as well as to collect floral and extrafloral nectars. They also are reported to feed on both living and dead insects.

An elevated soil nest of *T. sessile* was observed against a leaf of *Sarracenia purpurea* L., the northern pitcher plant (Fig. 1), in Suitland Bog, Prince Georges' Co., Maryland. Suitland Bog is a hillside fen. The ant nest and associated pitcher plant were monitored for several weeks. During the observation period one to six worker ants were observed on the hood (B) and lip (A) of the leaf closest to the ant colony (Fig. 1). Ants were sporadically observed on other leaves of the same plant cluster. As one ant would leave the leaf closest to the nest, others would arrive. Yet, the numbers of ants on the leaf at any one time remained between 1–6 workers. An ant nest at that location was surprising because the ground was saturated with water. It was assumed that the nest did not extend below the surface. Worker ants were active for much of the day (period between 9:00 AM and 4:00 PM).

At the end of the observation period, one side of the nest was partially opened. Mature larvae and pupae were readily apparent. Since the nest was minimally disturbed, only a small fraction of the colony was visible. By the time the site was revisited again in September, the ants had abandoned the nest. It is assumed that they moved to higher and drier ground to prepare for over-wintering.

Sarracenia purpurea has dermal glands in the leaves that release extrafloral nectar (Joel 1986). The greatest density of these glands is on the lip of the leaf (Fig. 1A). The total carbohydrate content of the extrafloral nectar of *S. purpurea* has been studied by Cipollini (Cipollini et al. 1994). Nectar production is correlated with the age of the leaf. Older leaves do not produce detectable quantities of carbohydrates. Dress (Dress et al. 1997) reported measurable amounts of amino acids in *S. purpurea* extrafloral nectar samples.

The discovery of extrafloral nectar sources can prompt several different responses in ants. When foraging worker ants encounter a rich nectar source, the ants will consume the sugar source until they are replete. Others will feed and mark a trail back to the parent nest to recruit other workers. Koptur (1992) states that worker ants will treat ex-

Fig. 1. *Sarracenia purpurea* plant with *Tapinoma sessile* nest to the right of the labeled leaf. A = lip of the leaf, B = hood of the leaf.

trafloral nectaries in the same manner as they treat honeydew-producing insects. They will actually defend and protect the sugar source.

We believe *Tapinoma sessile* has taken this strategy one step further. Upon locating and evaluating the extrafloral nectar source of *S. purpurea*, the ants built a nest next to the pitcher plant. Brood production for the ant appeared to coincide with extrafloral nectar flow from the new leaves.

The northern pitcher plant is rather localized in its distribution being restricted to bogs, fens and hillside seeps in the eastern United States and Canada. The observation reported here demonstrates the flexibility of *T. sessile* to adapt to a specific set of conditions. Since there was a second *T. sessile* nest near a separate plant in a different part of Suitland Bog, this was not an isolated observation. The ants appeared to be taking advantage of a particular food source in the most efficient manner to maximize their brood production.

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